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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,830	08/02/2001	Hiroshi Nakaishi	Q65699	4336

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EXAMINER	
CURS, NATHAN M	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 07/19/2004 5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/919,830	NAKAISHI, HIROSHI	
	Examiner	Art Unit	
	Nathan Curs	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 August 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 August 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3 and 4*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 5, 6, 9 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by ITU G.983.1 [1998] (http://crewman.uta.edu/~basu/5347spring2003/PON.pdf).

Regarding claim 1, ITU G.983.1 disclose an ATM-PON (Asynchronous Transfer Mode Passive Optical Network) dual system (page i, Summary section and page 109, Figure IV.2: (c)) providing a reliable service by dualizing intervals between optical couplers and ONUs (Optical Network Units) (page 109, Figure IV.2 and pages 107-110, subsections IV.3.1, IV.3.2 and IV.4), comprising: a control information loading means which loads switch controlling information to a fixed area of a format transmitted and received between an OLT and the ONUs (page 110,

subsection IV.4); and a switch controlling means which switches to each of a VP or a VC on the basis of said switch controlling information (page 9, section 5.5, page 106, section IV.2 and figure IV.1, element VP/VC switch, and page 110, section IV.4).

Regarding claim 2, ITU G.983.1 discloses the ATM-PON dual system as claimed in claim 1, wherein said switch controlling means is characterized in deciding necessity of switching by referring to K1/K2 byte areas of a PLOAM (Physical Layer OAM) cell for a monitor transmitted and received between the OLT and the ONUs (page 41, section 8.3.5.9).

Regarding claim 5, ITU G.983.1 discloses an ONU, which is used for an ATM-PON, being configured by dualizing the interval between said ONU and an OLT, comprising: two line termination devices which terminate each line; a transmitting means which allocates signals from subscribers to said two line termination devices and transmits to said OLT; a receiving means which receives signals transmitted from the OLT at each line termination device; and a selector which selects either one of signals (page 106, section IV.2 and figure IV.1, element VP/VC switch, and page 109, Figure IV.2: (c)).

Regarding claim 6, ITU G.983.1 discloses the ONU as claimed in claim 5, further comprising a switch deciding means which decides necessity of switching the ONU according to existence of switch controlling information received at each line termination device from the OLT (page 106, section IV.2, and figure IV.1; page 107, section IV.3.1; page 109, Figure IV.2: (c); and page 110, section IV.4).

Regarding Claim 9, ITU G.983.1 discloses an ATM-PON dual method providing a reliable service, comprising the steps of: dualizing an interval between an optical coupler and an ONU (page 109, Figure IV.2 and pages 107-110, subsections IV.3.1, IV.3.2 and IV.4) and loading switch controlling information to K1/K2 byte areas of a PLOAM cell for a monitor, which is transmitted and received between an OLT and the ONU (page 41, section 8.3.5.9); and

switching a relevant VP or VC on the basis of said switch controlling information (page 9, section 5.5, page 106, section IV.2 and figure IV.1, element VP/VC switch, and page 110, section IV.4).

Regarding Claim 21, ITU G.983.1 discloses an ATM-PON dual method containing optical couplers branching and connecting an OLT and a plurality of ONUs, being configured with a redundant interval between said ONU and said optical couplers (page 107, section IV.3.1; page 109, Figure IV.2: (c); and page 110, section IV.4), and receiving data at each ONU transmitted from said OLT, characterized in switching output lines by an optical switch provided at an output side of an ONU of said optical coupler (page 106, section IV.2 and figure IV.1 and page 107, section IV.3.1 "Type C").

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3, 4, 7, 8, 10-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over by ITU G.983.1 [1998] (http://crewman.uta.edu/~basu/5347spring2003/PON.pdf) in view of Kumozaki et al. (United States Patent No. 5539564).

Regarding Claim 3, ITU G.983.1 disclose an OLT, which is used for an ATM-PON, comprising a frame structuring means uses K1 or K2 byte of a message area within a PLOAM cell (page 9, section 5.5, page 106, section IV.2 and figure IV.1, element VP/VC switch, and page 110, section IV.4), and a switch requirement transmitting means which requires line switch

of ONUs by using K1/K2 bytes (page 41, section 8.3.5.9). ITU G.983.1 do not disclose that the K1 or K2 bytes are loaded with SC (Switch Confirmation requirement) signals and SR (Switch Requirement) signals. Kumozaki et al. disclose an optical transmission system with dual paths for protection switching (fig. 1) where a failure in the optical network results in the user nodes send a message, or switch confirmation requirement signal to the central office equipment indicating the failure and the central office sends a message, or switch requirement signal, instructing a switch to the protection path (fig. 1 and col. 10, lines 47-63). It would have been obvious to one of ordinary skill in the art at the time of the invention to use switch confirmation requirement and switch requirement signals between the OLT and ONU of the K1/K2 switching bytes of the system of ITU G.983.1, in order to provide the benefit of confirmed switching of only the specific switching necessary to compensate for the failure where it occurs in the network configuration and not switching the entire system to the protection system, as taught by Kumozaki et al.

Regarding Claim 4, ITU G.983.1 in view of Kumozaki et al. discloses the OLT as claimed in claim 3, comprising: a PLOAM cell transmitter/receiver, a PLOAM cell being used for monitoring and being transmitted and received between the OLT and the ONUs (page 41, section 8.3.5.9 and page 110, section IV.4); a dualized line termination device loading a PST message transmitter/receiver, which loads and divides switch controlling information to K1/K2 byte areas of said PLOAM cell (page 107, section IV.3.1 and figure IV.2 and page 41, section 8.3.5.9 and page 110, section IV.4); and a VP/VC (Virtual Path/Virtual Channel) switch which switches a relevant VP or VC on the basis of said K1/K2 byte information (page 106, section IV.2 and figure IV.1).

Regarding Claim 7, ITU G.983.1 discloses the ONU as claimed in claim 6, and discloses an ONU state table showing the functional behavior of the ONU (page 74, section 8.4.4.2.2 and

Table 18), but does not disclose the switching decisions included in the state table. However, considering the teaching Kumozaki et al. described above for claim 3, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of ITU G.983.1 with those of Kumozaki et al., as described above for claim 3, and further it would have been obvious to one of ordinary skill in the art at the time of the invention to then include the switching decisions in the ONU state table, based on the OLT receiving a switch confirmation requirement signal from the ONU and the ONU subsequently receiving a switch requirement signal.

Regarding Claim 8, ITU G.983.1 discloses an ATM-PON dual system including an OLT, which is used for an ATM-PON, having a frame structuring means which load switching signals to unused K1 or K2 byte of a message area within a PLOAM cell, and a switch requirement transmitting means which requires line switch of ONUs by using K1/K2 bytes (page 41, section 8.3.5.9 and page 110, section IV.4), an ONU, which is used for an ATM-PON, being configured by dualizing the interval between said ONU and an OLT, having two line termination devices which terminate each line, a transmitting means which allocates signals from subscribers to said two line termination devices and transmits to said OLT, a receiving means which receives signals transmitted from the OLT at each line termination device, and a selector which selects either one of signals (page 107, section IV.3.1 and page 109, fig. IV.2 (c)), and a plurality of optical couplers, being configured with a redundant interval between said OLT and said ONU (page 109 and fig IV.2 (c)), and selecting data at said ONU transmitted from said OLT, comprising: a switch controlling means which controls switching of said redundant system by using switch controlling information loaded on a fixed place of a frame format transmitted and received between said OLT and said ONU (page 41, section 8.3.5.9 and page 110, section IV.4). ITU G.983.1 do not disclose that the K1 or K2 bytes are loaded with SC (Switch

Confirmation requirement) signals and SR (Switch Requirement) signals. Considering the teaching Kumozaki et al. described above for claim 3, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of ITU G.983.1 with those of Kumozaki et al., as described above for claim 3.

Regarding Claim 10, ITU G.983.1 discloses the ATM-PON dual method as claimed in claim 9, and requiring line switch of the ONUs by using said K1/K2 bytes (page 41, section 8.3.5.9), but does not disclose the steps of: loading SC signals and SR signals to unused K1 or K2 byte of a message area within a PLOAM cell. Kumozaki et al. disclose an optical transmission system with dual paths for protection switching (fig. 1) where a failure in the optical network results in the user nodes send a message, or switch confirmation requirement signal to the central office equipment indicating the failure and the central office sends a message, or switch requirement signal, instructing a switch to the protection path (fig. 1 and col. 10, lines 47-63). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of ITU G.983.1 with those of Kumozaki et al., as describe above for claim 3.

Regarding Claim 11, ITU G.983.1 in view of Kumozaki et al. disclose the ATM-PON dual method as claimed in claim 10, comprising the steps of: allocating signals from subscribers to said two line termination devices at the ONU and transmitting to said OLT (page 106, section IV.2 and fig. IV.1); receiving signals transmitted from said OLT at each line termination device; and selecting signals of said line termination device (page 109, fig. IV.2 (c) and page 110, section IV.4).

Regarding Claim 12, ITU G.983.1 in view of Kumozaki et al. disclose the ATM-PON dual method as claimed in claim 10, comprising a step of deciding necessity of switching the ONU according to existence of switch controlling information received at each line termination unit

from the OLT (the combined teachings of ITU G.983.1 with those of Kumozaki et al., as describe above for claim 3).

Regarding Claim 13, ITU G.983.1 in view of Kumozaki et al. disclose the ATM-PON dual method as claimed in claim 10, and discloses a state table showing the functional behavior of the ONU (page 74, section 8.4.4.2.2 and Table 18), but does not disclose the switching decisions included in the state table. It would have been obvious to one of ordinary skill in the art at the time of the invention to include switching information in the state table of the combination of ITU G.983.1 in view of Kumozaki et al. as described above for claim 7.

Regarding Claim 14, ITU G.983.1 in view of Kumozaki et al. disclose the ATM-PON dual method as claimed in claim 10, comprising the steps of: broadcasting a frame containing a PLOAM cell which loads said switch controlling information to all of the ONUs connected to downstream; and deciding switch of a system within a relevant ONU according to existence of 0-system/1-system of switch controlling information of a PLOAM cell obtained from a frame by said each ONU (page 41, section 8.3.5.9 and page 110, section IV.4).

Regarding Claim 15, ITU G.983.1 in view of Kumozaki et al. disclose the ATM-PON dual method as claimed in claim 10, comprising the steps of: transmitting a frame containing a PLOAM cell which loads said switch controlling information to a specified ONU connected to downstream; and deciding switch of a system within a relevant ONU according to existence of 0-system/1-system of switch controlling information of a PLOAM cell obtained from a frame by said each ONU (page 41, section 8.3.5.9 and page 110, section IV.4).

Regarding Claim 16, ITU G.983.1 in view of Kumozaki et al. disclose the ATM-PON dual method as claimed in claim 10, comprising the steps of: allocating signals from subscribers to said two line termination devices at said ONU and transmitting to said OLT (page 107, section IV.3.1 and page 109, fig. IV.2 (c)); receiving signals broadcasted from said OLT at each line

termination device; and selecting signals of said line termination device (page 110, section IV.4).

Regarding Claim 17, ITU G.983.1 discloses an ATM-PON dual method monitoring status of an interval between an OLT and an ONU by using a PST message, comprising the steps of: transmitting switch signals to an ONU connected to downstream all together (page 41, section 8.3.5.9); and switching a system at an ONU receiving said switching signal (page 110, section IV.4). ITU G.983.1 does not disclose the case of detecting a line switching trigger at said OLT, deciding necessity of switching at the ONU receiving switch signals, and switching only a system of an ONU deciding that switching is necessary. Considering the teaching Kumozaki et al. described above for claim 3, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of ITU G.983.1 with those of Kumozaki et al., as described above for claim 3.

Regarding Claim 18, ITU G.983.1 discloses an ATM-PON dual method monitoring status of an interval between an OLT and an ONU by using a PST message, comprising the steps of: transmitting switch signals to an ONU connected to downstream all together (page 41, section 8.3.5.9); and switching a system at an ONU receiving said switching signal (page 110, section IV.4). ITU G.983.1 does not disclose the case of detecting a line switching trigger at said OLT, deciding necessity of switching at the ONU receiving switch signals, returning switching reply signals and switching only a system of an ONU deciding that switching is necessary. Considering the teaching Kumozaki et al. described above for claim 3, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of ITU G.983.1 with those of Kumozaki et al., as described above for claim 3.

Regarding Claim 19, ITU G.983.1 in view of Kumozaki et al. disclose the ATM-PON dual method as claimed in claim 17, characterized in that said ATM-PON contains a single system

ONT partially (ITU G.983.1: page 109, fig. IV.2 (d)), and said ONT does not process relevant signals even if receives switch confirmation requirement signals received from the OLT (Kumozaki et al.: col. 10, lines 47-63), where no switching instruction is sent from the OLT to the single ONU in response to a failure.

Regarding Claim 20, ITU G.983.1 in view of Kumozaki et al. disclose the ATM-PON dual method as claimed in claim 18, characterized in that said ATM-PON contains a single system ONT partially (ITU G.983.1: page 109, fig. IV.2 (d)), and said ONT does not process relevant signals even if receives switch confirmation requirement signals received from the OLT (Kumozaki et al.: col. 10, lines 47-63), where no switching instruction is sent from the OLT to the single ONU in response to a failure.

Conclusion

6. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (703) 305-0370. The examiner can normally be reached M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

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